July 1987

Interim Guidelines for

- **Providers of pre-hospital emergency care**
- **Resuscitation training**

Workplace Prevention and Management of
Acquired Immunodeficiency Syndrome (AIDS)
and Human Immunodeficiency Virus Infections (HIV)

Manitoba
Health

WORKPLACE PREVENTION AND MANAGEMENT OF

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

AND

HUMAN IMMUNODEFICIENCY VIRUS INFECTIONS (HIV)

INTERIM

GUIDELINES FOR

PROVIDERS OF PREHOSPITAL EMERGENCY CARE

RESUSCITATION TRAINING

Manitoba Health

PREFACE

The purpose of this series of infection control guidelines is to provide information on measures which should be taken to prevent the transmission of AIDS virus (HIV) infection in the community, in institutions and in other workplaces.

AIDS virus (HIV) infection is transmitted by the exchange of blood and/or body fluids; it is basically a sexually transmitted infection and modification of sexual practices is the single most important method of preventing infection.

In the workplace, handwashing and caution in the use and disposal of needles are the most important infection control procedures.

Most persons with AIDS virus (HIV) infection are asymptomatic and many are not aware that they are infected. For this reason, appropriate precautions must be taken for all persons at risk of being infected. In most situations the following guidelines are applicable to all persons - whether they are identified as being infected or not.

The titles available under the series of Workplace Prevention and Management of Acquired Immunodeficiency Syndrome (AIDS) and Human Immunodeficiency Virus Infections (HIV) are:

Guidelines for hospitals, laboratories, and pathologists
Guidelines for funeral directors
Guidelines for home care providers, and long term facilities
Guidelines for providers of prehospital emergency care and resuscitation training
Guidelines for dentistry
Guidelines for correctional and detentional facilities
Guidelines for schools and daycare centres
Guidelines for personal service workers.

ACKNOWLEDGEMENTS

In May 1986, Manitoba Health, Communicable Disease Control, and the University of Manitoba, Department of Continuing Education, sponsored a workshop on infection control strategies for AIDS & AIDS virus (HIV) infections. The workshop was the impetus for these guidelines. The contribution of the participants is appreciated.

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As the bibliography indicates, Canada Diseases Weekly Report (CDWR) and Morbidity Mortality Weekly Report (MMWR) recommendations are the basis for many of these guidelines.

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INTRODUCTION TO AIDS AND AIDS VIRUS (HIV) INFECTION

DEFINITION

Acquired Immunodeficiency Syndrome (AIDS) is a breakdown of the body's immune system - its natural defense against disease. Without this protection, a person is vulnerable to illnesses which a healthy immune system can prevent.

A person with AIDS fights an ongoing battle against many illnesses. Rare forms of pneumonia, skin cancer or brain infection may occur and are eventually fatal.

CAUSE

AIDS is caused by a virus - commonly called the Human Immunodeficiency Virus (HIV) - which attacks the body's immune system. Infection with this virus does not always lead to AIDS. Infected persons may have a mild illness or none at all. As yet, it is not known why some people become ill and others do not. The amount of virus, as well as infection by other viruses, may influence the development of AIDS.

SYMPTOMS

At present, the vast majority of persons with an AIDS virus (HIV) infection (approximately 70%) may feel completely well and have no symptoms. Some infected persons (approximately 25%) have some of the following symptoms: swelling of glands in the neck, armpits and groin, a thick white coating on the tongue, unexplained weight loss, persistent diarrhea, a harsh dry cough, tiredness, fever, or night sweats. These symptoms may be referred to as AIDS-related conditions (ARC). Only about five percent of persons presently infected with the AIDS virus (HIV) have the actual syndrome known as AIDS.

TRANSMISSION (Spread)

How the Virus is Spread

- The AIDS virus (HIV) has been shown to be spread from an infected person to an uninfected person in the following ways:
  - through sexual contact (penis/vagina, penis/rectum, mouth/rectum, mouth/genital)
  - through sharing needles used in injecting drugs,
  - through transfusion or injection of infectious blood or blood products; to help prevent this type of spread, all blood donations in Canada are now screened for evidence of AIDS virus (HIV) infection,
  - from an infected woman to her fetus or newly born baby.

- An individual can be infected with the virus that causes AIDS without having symptoms of AIDS or appearing ill. Infected individuals without symptoms can transmit the infection to others. Once infected, a person is presumed infected for life, but actual symptoms may not develop for many years.

- A single exposure to the AIDS virus (HIV) may result in infection.

How the Virus is NOT Spread

- There is no evidence that the virus is spread through casual social contact such as shaking hands, social kissing, coughing, sneezing, sharing swimming pools, bed linens, eating utensils, office equipment, or being next to or served by an infected person. There is no reason to avoid this type of contact with an infected person.

- It is not spread by the process of giving blood; new transfusion equipment is used for each donor.

- It is not spread by sexual intercourse between uninfected individuals who have maintained an exclusive sexual relationship.

RISK ACTIVITIES

1. Sexual activity with a number of different partners, particularly if they are anonymous.
2. Anal intercourse
3. Intravenous drug abuse.

GROUPS AT RISK

1. Homosexual and bisexual men
2. Intravenous drug abusers
3. Recipients of multiple blood or blood product transfusions prior to 1986
4. Children born to mothers infected with the AIDS virus (HIV)
5. Persons with multiple sex partners.
6. People who are sexually active with individuals who are or may be infected.

AIDS AND AIDS VIRUS (HIV) TESTING

At the present time, blood can routinely be tested only for signs of the virus. These signs are special blood components called antibodies which form in response to the virus. The blood test is available only at the request of a physician and should only be done after appropriate counselling has taken place.

Positive Antibody Test

If antibodies to the AIDS virus (HIV) are found in the blood, it means the person has been infected with this virus at some time. A positive test result does NOT mean that a person has AIDS or will get AIDS at some time in the future. It does **NOT** mean the person is immune to (protected from) the virus. It **DOES** indicate that the person has been exposed to the virus, is assumed to carry the virus and could spread it to others.

Negative Antibody Test

A negative test usually means that the person has not been infected with the AIDS virus (HIV).

TREATMENT

At this time there is no treatment which can repair the breakdown of the body's immune system. Treatments are available for many of the illnesses which develop because of the weakened immune system. However, AIDS is always fatal. Most patients die within three years of diagnosis.

PREVENTION

No vaccine is currently available. The only strategy to combat the spread of infection is to prevent the transmission of the virus from one person to another.

PUBLIC EDUCATION

GENERAL PUBLIC

Education of the general public is an essential component of the program to control AIDS and AIDS virus (HIV) infections. Knowledge of how the disease is spread and how to avoid infection should reduce much of the concern which exists in the community. At the same time, accurate information should motivate all individuals to realistically reduce their own risk of acquiring or transmitting this infection.

People infected with the virus may seem completely healthy and may not even know they have it. Although most persons in North America who are known to be infected are in groups at risk, anyone who is exposed can become infected. Therefore, it is prudent for everyone to take precautions to protect themselves from becoming infected. The following information and advice is appropriate for the general public:

- Infection through sexual contact can be avoided by abstaining from sexual activity. Sexually active persons can avoid the AIDS virus (HIV) infection by establishing a mutually exclusive relationship with an uninfected partner.

- Individuals who are sexually active should not have sex with many different people. The more partners one has, the greater the chances of having sex with an infected person.

- The use of condoms is strongly encouraged if there is any possibility that a sex partner has been exposed to or is infected with AIDS virus (HIV). A history of intravenous drug-use or of many sex partners increases the chance that a person may have been infected.

- Sharing needles and syringes should be avoided.

- Anal intercourse should be avoided. It is important to use a condom if one does have anal intercourse.

SCHOOLS

School boards and public health offices are encouraged to develop education programs to inform children, parents, and teachers about AIDS and AIDS virus (HIV) infections. Education about risk factors and risk reduction methods should be factual and non-judgmental.

SCHOOL AND COLLEGE AGED POPULATIONS

Education to these students should emphasize:

- One can virtually <u>eliminate</u> the risk of AIDS and AIDS virus (HIV) infections by saying no to sex and drugs.

- One can <u>reduce</u> the risk of AIDS by practicing responsible sexual behavior with a mutually exclusive partner and avoiding risk activities.

GROUPS AT RISK AND RISK ACTIVITIES

Persons in risk groups and persons who engage in risk activities should be informed about AIDS and AIDS virus (HIV) infections so they can take precautions to minimize their chances of acquiring or transmitting the infection.

The following advice is particularly appropriate for persons who are in known risk groups or who engage in risk activities:

- Use condoms during sexual activity. The proper use of condoms may prevent infection with the virus carried in semen and vaginal fluid.

- Do not have anal intercourse. It can cause sores or cuts in the rectum and the virus may get into the bloodstream through these breaks. If you do have anal intercourse, use a condom.

- Do not have oral sex if you have open sores or cuts in the mouth.

- Do not allow semen, blood, urine or feces to enter the body of a sexual partner.

- Infected women should use a reliable method of contraception to avoid pregnancy.

- Never share needles and syringes with anyone.

- Do not donate blood, organs or sperm.

THE WORKPLACE

It is essential that all individuals be knowledgeable about basic infection control practices and be encouraged to follow them. An educational effort directed to staff in all workplaces is an important aspect of preventing transmission of infections and reducing anxiety and misunderstanding about the infection. Although educational initiatives need to address communicable diseases in general, specific emphasis should be directed at AIDS and AIDS virus (HIV) infections. The goal of this education is to combat fear that is based on misinformation or lack of information and to minimize the risk of transmission of AIDS virus (HIV) by promoting good health practices. These include routine use of infection control precautions and eliminating risk behaviors. Staff also need to be provided with information regarding the signs and symptoms of AIDS virus (HIV) infections, the methods of transmission of the virus and preventive measures. This information should be presented in terms that are easily understood and should include literature in foreign languages if required.

GUIDELINES FOR PROVIDERS OF PREHOSPITAL EMERGENCY CARE

Providers of prehospital emergency health care include the following: paramedics, emergency medical technicians, law enforcement personnel, firefighters, lifeguards, and others whose job might require them to provide first-response medical care.

No transmission of AIDS virus (HIV) infection during mouth-to-mouth resuscitation has been documented. However, because of the theoretical risk of salivary transmission of the virus during mouth-to-mouth resuscitation, special attention should be given to the use of disposable airway equipment or resuscitation bags and the wearing of gloves when in contact with blood or other body fluids. Resuscitation equipment and devices known or suspected to be contaminated with blood or other body fluids should be used once and disposed of, and thoroughly cleaned and disinfected after each use.

Ambulance workers may come into contact with infectious diseases in a wide variety of settings, including transporting patients with known infectious diseases between hospitals and attending accidents and fatalities. They are often required to have contact with individuals for whom no medical information is available. At the scene of accidents, ambulance drivers involved in removing injured people from wreckage may be cut themselves. Bloodstream contact with infectious agents carried by the accident victim is possible.

Police attending an accident scene may be exposed to the virus in the same way as ambulance workers - through blood contact with cuts or abrasions. Police are called to attend when bodies are discovered and death is unexplained. They do not know if the body is carrying an infectious disease.

Therefore, it is important that all persons who provide prehospital emergency care be educated about AIDS virus (HIV) infection and recognize that the following precautions are appropriate for them to use at all times.

HANDWASHING

Hands must be washed after all direct contact with a potentially infected person and must be washed thoroughly and immediately if they become contaminated with blood or body fluids.

GLOVES

Gloves should be worn when having direct contact with blood or body fluids, secretions or excretions, as well as surfaces and objects exposed to them.

NEEDLES AND SYRINGES

EXTREME CARE IS NECESSARY TO AVOID ACCIDENTAL WOUNDS FROM NEEDLES AND SHARP INSTRUMENTS.

Preferably disposable and disposed of in rigid, non-permeable, puncture-resistant containers. If reusable syringes are used, they must be decontaminated before reprocessing.

Needles should <u>not</u> be recapped and should <u>not</u> be purposely bent or broken by hand.

Police officers may be at particular risk of needlesticks if they are involved in the management of intravenous drug users. They must exercise extreme caution in handling any needles and other drug-abusing paraphernalia.

BLOOD/BODY FLUID SPILLS

Blood and other body fluid spills should be wiped up immediately with an appropriate disinfectant, e.g. bleach solution (See Glossary, page 19) to be prepared daily or glutaraldehyde.

CLOTHING

The following procedure is recommended for clothing that may have been contaminated while on duty:

1) Remove as much contaminent as possible by
   (a) scraping dry, crusted soil with a disposable item such as a stick or easily washable item such as a knife.
   (b) wiping or washing wet contaminent with a rag or paper towel which can be discarded.
2) Equipment used to help clean clothing can be disposed of in any trash receptacle.

Clothing should be laundered or dry cleaned; no special precautions are needed.

MASKS

Masks are not routinely necessary.

Masks are recommended for personnel who have close, sustained contact with persons who are coughing extensively or who are intubated and being suctioned, and in situations in which splatter with blood and body fluids may occur.

PROTECTIVE EYEWEAR

Protective eyewear is only recommended in situations in which splatter with blood or body fluids is possible (e.g. endotracheal intubation).

RESUSCITATION EQUIPMENT

Resuscitation bags or disposable devices with a one-way valve mechanism for mouth-to-mouth cardiopulmonary resuscitation should be available for all persons providing emergency care.

Decontamination of reusable resuscitation equipment requires cleaning and sterlization or high-level disinfection.

SURROUNDING AREA

All surfaces contaminated or possibly contaminated should be cleaned with a bleach solution (See Glossary, page 19).

Instruments and other items that come in contact with mucous membranes and skin require cleaning and soaking in 2% glutaraldehyde for 30 minutes (rinse well afterwards).

GUIDELINES FOR RESUSCITATION TRAINING

In recent years, the use of cardiopulmonary resuscitation (CPR) manikins has increased rapidly. It is now estimated that about 40 million people in Canada and the U.S.A. have used manikins during resuscitation training courses. There have been concerns raised about the possible role of CPR training manikins in transmitting diseases such as hepatitis B, AIDS, herpes and respiratory infections such as influenza and tuberculosis. Although the use of CPR training manikins has never been documented as being a factor for a disease outbreak or even an isolated case of bacterial, fungal or viral disease, there is a theoretical risk that disease can be transmitted via manikin surfaces. It is therefore recommended that manikins should be cleaned and disinfected regularly to minimize this potential risk.

CPR students using manikins may be exposed to virus and bacteria in the following ways:

1. Mouth-to-mouth respiration requires close physical contact and students may practice on manikins contaminated by the hands and saliva of previous students. For example, throat sweeping to remove upper airway obstruction may smear contaminants from the previous students or contaminate the student's finger.

2. During two-rescuer CPR, the manikin cannot be adequately cleaned between uses by the two students. Although some manufacturers provide protective face shields, it is unlikely that such shields would be changed during the two-rescuer resuscitation method; and

3. The manikin's valve mechanisms and lungs may become contaminated and be a source of contamination for subsequent classes if they are not dismantled and cleaned after use.

There is no evidence to indicate that valve mechanisms produce aerosols during chest compression exercises.

While there are several recommended disinfectants, including formaldehyde and glutaraldehyde, most are unsuitable because they may stain or damage the plastic manikin surface or because they may leave undesirable residues, odors or toxicities.

Alcohols, quaternary ammonium compounds and phenolics are not generally recommended because of the length of contact time needed to achieve effective action (eg. alcohols evaporate rapidly) or the compounds have limited effectiveness against certain viruses and bacteria.

The following steps are recommended to prevent the spread of disease via CPR training manikins:

1. Purchasers of training manikins should follow the manufacturer's recommendations for care and cleaning.

2. Students should be told prior to the training classes that sessions will involve close physical contact with other students.

3. Students should not actively participate in training sessions (hands-on training with manikins) if they have skin lesions on their hands, mouth, lips or surrounding areas, or if the student has reason to believe that he or she has been exposed to or is in the active stage of an infectious disease such as upper respiratory infection, hepatitis B or AIDS virus (HIV).

4. If more than one CPR manikin is used in a particular training class, students should be assigned in pairs, with each pair having contact with only one manikin.

5. All persons responsible for CPR training should follow the principles of good hygiene, including thorough handwashing prior to manikin contact and not eating during class to avoid contamination of manikins with food particles. They should also follow the procedures for cleaning and maintaining manikins and accessories (e.g., face shields). Manikins should be inspected routinely for signs of

physical deterioration, such as cracks or tears in plastic surfaces, which make thorough cleaning difficult or impossible. The clothes and hair of manikins should be washed periodically (e.g., monthly or whenever visibly soiled).

6. During the training of two-rescuer CPR, there is no opportunity to disinfect the manikin between students when the "switching procedure" is practised. In order to limit the potential for disease transmission during this exercise, the second student taking over ventilation on the manikins should simulate ventilation instead of blowing into the manikin.

7. Training for the "obstructed airway procedure" involves the student using his or her finger to sweep foreign matter out of the manikin's mouth. This action could contaminate the student's finger with exhaled moisture and saliva from previous students in the same class and/or contaminate the manikin with material from the student's finger. When practicing this procedure, the finger sweep should either be simulated or done on a manikin whose airway was decontaminated before the procedure and will be decontaminated after the procedure.

8. At the end of each class, the following procedures should be employed as soon as possible to avoid drying of contamination on manikin surfaces:

   a) Disassemble manikin as directed by manufacturer.

   b) Thoroughly wash all external and internal surfaces (also reusable protective face shields) with warm soapy water and brushes).

   c) Rinse all surfaces with fresh water.

   d) Wet all surfaces with a bleach solution (See Glossary, page 19). This solution must be made fresh at each class and discarded after use.

   e) Rinse with fresh water and immediately dry all external and internal surfaces. This drying will prevent the survival and growth of bacteria or other disease-causing agents.

9. Each time a different student uses the manikin, the individual protective face shield, if used, should be changed. Between students or after the instructor demonstrates a procedure, such as clearing any obstruction from the airway, the manikin face and inside of the mouth should be wiped vigorously with clean absorbent material (e.g., 4" x 4" gauze pad) wet with either bleach solution (See Glossary, page 19) or 70% alcohol (isopropanol or ethanol). The surfaces should remain wet for at least 30 seconds before they are wiped dry with a second piece of clean absorbent material.

Alcohol is recommended since some persons find the odor of bleach objectionable. Because alcohols do not kill all types of bacteria, the use of alcohols is recommended primarily as an aid in mechanical cleaning. After a short contact period, alcohols may not be effective against bacteria or other disease-causing agents. However, vigorous cleaning with alcohol and absorbent material should afford protection from microbial contamination.

10. Persons responsible for the use and maintenance of CPR manikins should be encouraged not to rely totally on the presence of a disinfectant to protect them and their students from cross-infection during training programs. Emphasis should be placed on the importance of thorough physical cleaning (scrubbing, wiping) as the first step of an effective decontamination procedure. Microbial contamination is easily removed from smooth, nonporous surfaces by using disposable cleaning cloths moistened with a detergent solution. There is no evidence that a soaking procedure alone in any liquid is as effective as this procedure accompanied by vigorous scrubbing.

MANAGEMENT OF POSSIBLE WORKPLACE EXPOSURE TO AIDS VIRUS (HIV)

If a worker or a patient/client has a needle puncture or cut to the skin or mucous membrane (e.g., splash to the eye or mouth) exposure to blood or other body fluids, the source person should be assessed clinically and epidemiologically by a physician to determine the possibility of AIDS virus (HIV) infection.

If such infection may exist, the source person should be informed of the incident and requested to consent to blood testing for evidence of AIDS virus infection. If the source patient is found to be infected or declines testing, the person who was exposed to possible infection should be evaluated clinically and serologically for evidence of AIDS virus (HIV) infection as soon as possible. If the exposed person's first blood test is negative, he or she should be retested after a period of 6 weeks and again at 3, 6 and 12 month intervals to determine if transmission has occurred. If the source person continues to show a negative test and has no evidence of AIDS virus (HIV) infection, no further follow-up is necessary.

GLOSSARY

AIDS	Acquired Immunodeficiency Syndrome.
ARC	AIDS-related Complex.
HIV	Human Immunodeficiency Virus: the agent which causes AIDS; formerly known as Human T-Lymphotropic Virus III/ Lymphadenopathy Associated Virus (HTLV-III /LAV).
HCW	Health Care Worker
HBV	Hepatitis B Virus
PSW	Personal Service Worker
Antiseptic	a chemical having the ability to destroy potentially infective micro-organisms and which can be used safely on living tissues.
Bleach Solution	the most commonly recommended disinfectant in these guidelines is bleach solution (i.e. a 0.5% sodium hypochlorite solution which can be prepared by mixing household chlorine bleach - (5.25%) one part bleach to nine parts water). It must be prepared fresh daily. This solution is corrosive and must be used with caution on metal surfaces.
Cleaning	Scrubbing and washing, with hot water, soap or detergent to remove infectious agents and/or organic matter from surfaces.
Disinfection	the use of germicidal chemical agents to destroy infectious agents.
Sterilization	the use of a physical process or chemical agents to eliminate all viable microorganisms. Steam and gas autoclaving and dry heat ovens are the most common methods.

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